Overview

Classroom design must be highly intuitive with an easy to use control system, identical in all classrooms. This funding allows us to better serve our students and provide our faculty with a seamless transition between rooms, maximizing instructional time due to less time spent in re-learning the particulars of each room as they transition between them. Required functionality includes the ability to use in-room computer or Bring Your Own Device (BYOD) with projector, sound system, and cameras for remote learning. Cisco Webex is provided by CCD for web-conferencing/remote learning; all installed equipment needs to be available to use from with Webex. BYOD's shall be able to connect to the projection system wirelessly.

All equipment must be securely mounted either above ceiling or in a standard equipment rack. This includes the OFE computer. Security screws are not required.

The work is divided into phases as follows:

- Phase 1: Highest priority classrooms and conference rooms.
- Phase 2: Auraria campus classrooms in the Cherry Creek building, remaining classrooms in Science building.
- Phase 3: Remaining Auraria campus classrooms and the rooms at the Advanced Manufacturing Center.

Phase 1 Notes

Many of the costs shown are estimates for work not yet completed and could change.

Supply chain delays have put some parts behind schedule and increased costs.

High Priority Classrooms

- 17 classrooms were identified as most critical in equipping for improved Hyflex teaching
- Installed:
  - New control system
  - Brighter bulb-less projector
  - Improved sound system replacing wall mounted speakers with ceiling mounted
  - Added a Pan-Tilt-Zoom camera
  - Added ceiling-mounted microphones
- Feedback gathered from these first rooms updated identified areas needing further improvement – these fixes were then added to the 17 rooms:
  - Audio routed independently of the projector
  - New touch screen programming tweaked to be more intuitive
- Additional equipment to be added to these classrooms
  - Confidence monitor for faculty
  - Whiteboard camera for better distance student experience

Updated Design Classrooms

- RFP created to get broader expert input into classroom design
- Proposal covers classrooms in Science building for next iteration
  - ceiling mounted document camera already used in these rooms – a desired addition to the classroom standard

- RFP scheduled to be awarded in late January, early February 2022

Projector-Only Classrooms

- Classrooms at the Lowry campus will be relocated in the next few years
- Projectors are dim, failing. Need to be replaced now.
- Only installing new projectors with new wiring; no other equipment will be installed
- Projectors will be re-used in new locations when these rooms go offline

Wireless Projection Proof-Of-Concept

- Large open space with 4 separate teaching areas
- Wired connections have been problematic – create tripping hazards
- Replace projectors with brighter ones
- Provide a wireless connection to the projectors
- Wireless connection technology will provide basis for conference room connectivity

Conference Rooms

- Smaller spaces - swap out noisy projectors for flat screens
- Add Pan-Tilt-Zoom camera and microphones
- Add room control system
- Uncomplicated installs to be completed with onsite staff

Main Conference Rooms

- Includes two rooms that are dividable/combinable, requiring advanced design
- Request for Proposals being solicited due to complexity

Wi-Fi Expansion

- Needed to improve coverage/saturation in all classroom and student areas

Phase 2 notes

Cherry Creek Classrooms

- 61 remaining classrooms – 7 were updated as part of the high priority classrooms first outfitted
- The design has changed since the high priority ones were installed – additional items added: New lectern, document camera, confidence monitor, whiteboard camera and wireless projector connections.
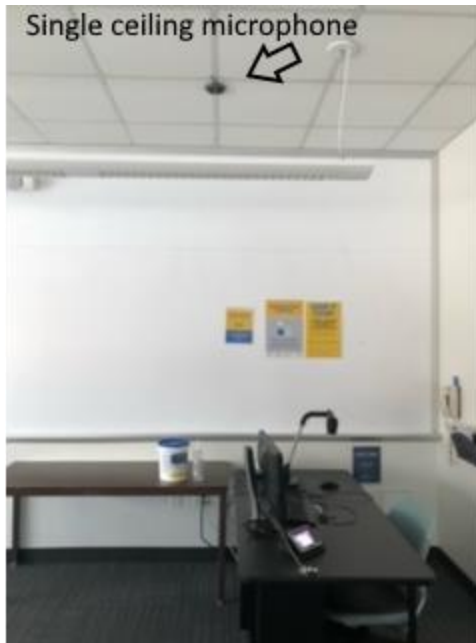
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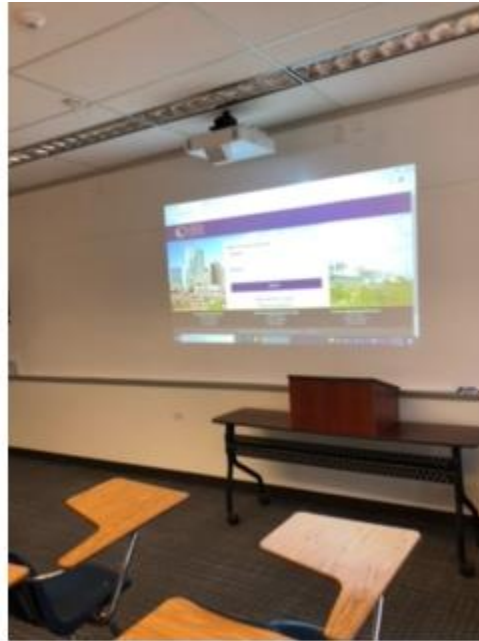
Contrasting the brightness and clarity of an existing projector with a new one.
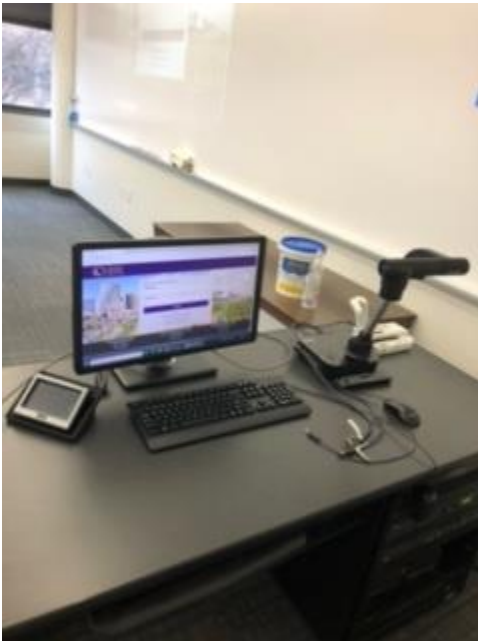
Examples of currently configured classrooms, with an awkwardly placed teaching station in the old "sage on the stage" teaching style. Too many wires and connections for faculty to deal with. New design is more flexible to accommodate other teaching modes.

Some classrooms quickly outfitted for hybrid classes have inadequate equipment. The web cam is not capable of zooming in to the front of the room, and the single microphone only picks up sound nearby.
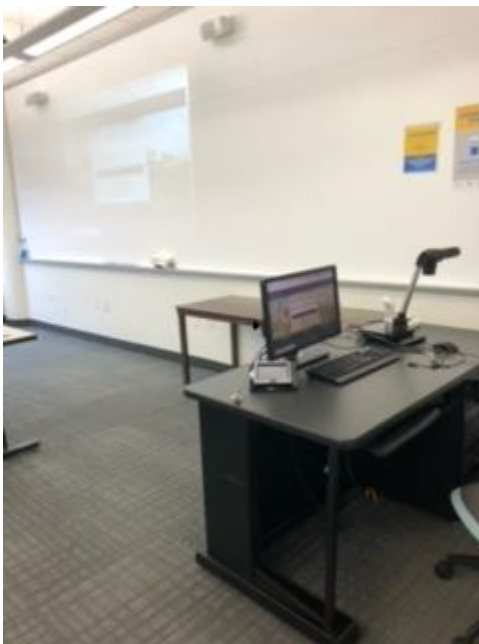
Sound is of the utmost importance when teaching online. Not only are microphones critical, but speakers are as well. Wall mounted ones (as seen in the classroom above) do not fill the room with sound evenly.

In this upgraded classroom, a microphone array picks up more sound throughout the room and more optimally located ceiling speakers replace the wall speakers. The far better Pan-Tilt-Zoom camera can focus in on more parts of the room.